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# Gender Differences in Poverty: A Cross-National Study

Pamala Wiepking and Ineke Maas

In this paper we describe and explain country differences in the effect of gender on the risk of becoming poor, using data from the Luxembourg Income Study on 22 industrialized countries. Although in most countries women are more likely to become poor than men, this is not the case for all countries. Composition effects explain 18 per cent of the country differences: differences in the educational level of the population are most important, whereas labor market participation plays a smaller role. Country characteristics, especially economic growth and social-democratic tradition, explain between 29 and 36 per cent of the country differences in the gender-poverty-gap. Both composition effects and country characteristics are better suited to explaining the disadvantages of women than the disadvantages of men.

## Introduction

One of the most persisting differences between men and women is that of income. Among high income earners women are under-represented (CBS, 2002). In many countries more women than men are poor (Casper *et al.*, 1994; Pressman, 2000; Wright, 1995). Interestingly enough, though, countries differ with respect to the gender-poverty-gap. In some countries men and women are almost equally likely to be poor, and in other countries – such as Ireland and Great Britain – men even have a greater poverty risk than women (Pressman, 1998). In this paper we describe the gender-poverty-gap in a large number of countries and investigate the causes of differences between these countries.

In order to answer our descriptive and explanatory questions, we will make use of the Luxembourg Income Study. We will concentrate our analyses on 'single' men and women, defined as those men and women who do not share their households with an adult partner. This group is not literally single because it includes widows and widowers, divorced men and women, and men and women living with children. Important, though, is the exclusion of households in which men and women live together. It is difficult to differentiate between poor and not-poor individuals within one household. In most research on poverty, therefore, all household members are assumed to be equally poor. Households containing both a man and a woman can thus, by definition, not contribute to a gender-poverty-gap.

## Research on Cross-National Gender Differences in Poverty

Although there is much literature on cross-national differences in income inequality between men and women, very little has been published on cross-national gender

differences in poverty. One of the first publications was by Smeeding *et al*. (1990). Although these researchers focused on cross-national differences in income poverty, and not specifically on cross-national gender differences in poverty, some things can be learned from their research. Smeeding *et al*. distinguished single-parent families in their research and assumed that these families are largely female-headed. One of the most striking conclusions of this article is that social welfare systems fail to alleviate these single-parent families from poverty.

Casper *et al*. (1994) compared the poverty gap between females and males living in all sorts of households in eight western industrialized countries and drew two conclusions. First, gender differences in demographic characteristics (such as having a paid job and taking care of children) are important in accounting for gender differences in poverty rates within, as well as between, the countries studied. Second, they conclude that there are three potentially successful strategies for minimizing gender differences in poverty. One is to encourage women to become economically independent through paid labor. A second strategy is to take political steps to encourage men and women to marry and stay married. The third strategy is to provide cash transfers to protect all citizens from poverty, regardless of whether they are married or employed.

Wright (1995) studied the gender-poverty-gap for women and men living in all sorts of households in 11 industrialized countries. He finds that women are over-represented amongst the poor in some countries and under-represented in others. He states that the latter part of this conclusion is in sharp contrast with conventional views about the relationship between gender and poverty in industrialized countries, which is that women are more often poor than men.

Finally, Pressman (1998, 2000) investigated whether and why poverty rates in 15 industrialized countries were higher for female-headed households than for other families. He found that in some, but not all countries, female-headed households suffer more from poverty then other households. In his conclusion he states that there is no single reason for gender differences in poverty, but there are many country specific causes. According to Pressman neither human capital nor gender discrimination explains cross-national gender differences in poverty. But he does find an influence of country specific tax and social security measures on gender differences in poverty.

We will add to the existing research in two important ways. First, we extend the number of countries in the comparison. This increases the possibility of detecting causes of a gender gap in poverty that lie at the country level. Second, we restrict the analyses to a comparison of single men and single women. In this way gender differences in poverty are better pictured than when female-headed households are compared with other households, because most of these other households also include women.

# Theory

Why are women more likely to be poor in some countries and men more likely to be poor in other countries? There are two types of answers to this question. First, countries may differ in the composition of their population with respect to individual characteristics that increase the likelihood to become poor. Secondly, the macro-level context may directly influence the poverty risks of men and women in different ways.

## Compositional Effects

From the human capital theory (Becker, 1964) it can be derived that women in general have higher poverty risks than men. Women do not only build up less human capital because they more often interrupt their occupational career, but they are also less willing to invest in human capital because they expect to have smaller benefits (Sanders, 1992). At the same time employers are less willing to invest in training for women for the same reason. As a result, in some countries, women participate less in work related training (Kilbourne *et al*., 1994), work in jobs with lower status (De Ruijter *et al*., 2003), and, except at very young ages, have shorter work experience (Schippers and Siegers, 1988). Since the possession of human capital leads to better jobs and more financial security, we can derive that women have higher poverty risks than men (Roos and Gatta, 1999). When men are more advantaged with respect to human capital in one country than in another, we also expect the gender-poverty-gap to be larger and more in favor of men in the first country. At the level of societies we therefore formulate the following hypothesis:

*Human capital hypothesis*: Cross-national gender differences in poverty can partly be explained by country level gender differences in human capital.

Single women more often take care of children than single men. The first group of single women to whom this applies is mothers who never married or cohabited (this is often the case with teenage pregnancies); a second

group is divorced women, who much more often take the responsibility of raising the children than divorced men. Since the upbringing of children is a time consuming business, single women with children are more likely not to work, or to work part-time. Even if they work full-time, they will tend to work in jobs that are less demanding – and pay less well – than the jobs of men and of women without children (SCP, 2000). The risk of becoming poor is, therefore, higher for singles (both men and women) taking care of children. All in all, differences in the percentages of single men and women taking care of children between countries will result in differential gender-poverty-gaps. These differences may, in turn, be caused by country differences in the rate of teenage pregnancy or in the divorce rate (Miller, 1992).

*Children-hypothesis*: Cross-national gender differences in poverty can partly be explained by country level gender differences in taking care of children.

Closely connected, but not identical to the children-hypothesis, is the paid-work-hypothesis. Mainly because of the care of children, women are more likely than men not to have paid work. We nevertheless expect an independent effect of having paid work on poverty, for two reasons. First, not all women with children quit paid work and there are large differences between countries in the extent that women do so (De Jong, 1999). Second, in some countries women are more likely to return to paid work when the children go to school or when they leave home, than in other countries (De Jong, 1999). Whether single men and women without a job will be poor, depends to a large extent on the social security arrangements in the country (see hypothesis below). However, they are definitely more likely to be poor than men and women with paid work.

*Paid-work-hypothesis*: Cross-national gender differences in poverty can partly be explained by country level gender differences in having paid work.

There are some major demographic differences between single men and women that can be a cause of gender differences in poverty. Roughly stated, there are three types of singles: young singles who have never been in a serious relationship, middle-aged divorcees, and old widows and divorcees. The first two categories are both male and female, whereas the last is predominantly female. This is a result of the difference in life expectancy between men and women and the fact that most women marry older men. Gender differences in poverty are likely to be larger among older singles than among younger singles for two reasons. First, because of disadvantages, e.g. in the accumulation of human capital, increase during the life course (age effect). Second, because older women have not been able to profit from emancipation as much as younger women have. Emancipation has helped many younger women to accumulate human capital, to have a paid job while raising children, and to acquire a pension of their own (cohort effect). The demographic composition of singles in a country is probably most affected by the average age of marriage and the divorce rate. Other causes of country differences in the demographic composition are the consequences of war, and differences in life expectancy.

*Age hypothesis*: Cross-national gender differences in poverty can partly be explained by country level gender differences in age.

All of the composition effects basically explain gender differences in poverty that are in favor of men. This means that taking the individual level characteristics into account would lead to an increase of the gender gap in poverty in countries in which the risk of poverty was higher for men than for women.

## Context Effects

In 1963, Kuznets developed an economic model which predicts that in a country varies with economic growth in that country in the form of a reversed U (Kuznets, 1963). Countries that experience either a period of hardly any economic growth or a period of large economic growth show less income inequality than countries with a medium economic growth (see Figure 1). According to Kuznets, economic growth must be looked at as a process. In the first period of the process the wealthier classes in a country accumulate savings faster than the poorer classes. In this period the distance between the economically booming cities and the economically depressed countryside grows larger. During the second period of economic growth, two developments cause income inequality to diminish. On the one side there is urban migration: farmers move to cities to fill up the shortage of laborers. On the other side, especially the less wealthy (but of course not the poor) invest in new and expanding industries with great rewards (Simpson, 1990). The industrialized countries in our study are all in the second period of economic growth. These countries therefore show a negative correlation between income inequality and (further) economic growth.

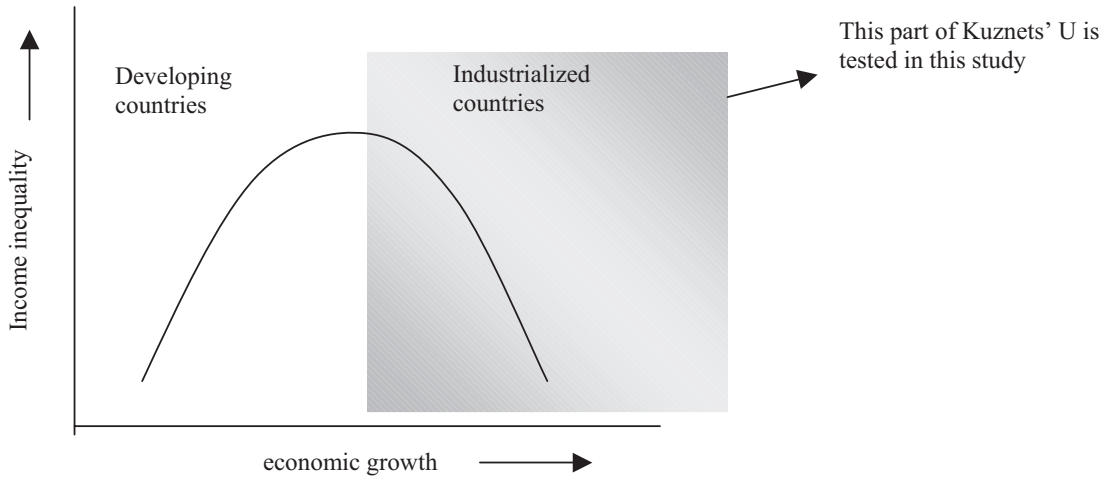


**Figure 1** Kuznets' U

Poverty is more likely in countries with higher income inequality. Therefore, Kuznets' theory can be used to explain cross-national gender differences in poverty. Besides that, the economic theory of Kuznets can be extended by a non-economic argument. Countries that have reached a certain level of economic development and still experience economic growth are more likely to invest in social security (see below). The economic growth hypothesis is basically gender neutral. This means that it explains both gender differences in favor of men and gender differences in favor of women.

*Economic growth hypothesis*: Cross-national gender differences in poverty can partly be explained by country level differences in economic growth.

According to Lenski, income inequality in non-communist industrial countries is smaller if they were governed by social-democratic parties for a longer period (Hewitt, 1977; Ultee *et al.*, 1996). This line of argument is governed by the assumption that social-democratic parties base their policy on an ideology of equality to a larger extent than conservative and liberal parties. In their ambition for equality, social-democratic parties level incomes either through tax measures or through social security. This leads to more income equality between men and women. Social-democratic parties also undertake action to diminish the disadvantages of women with respect to education and labor market careers as a consequence of child rearing. Lenski restricts this hypothesis to non-communist countries. It can be argued, however, that the governments in communist countries also strive for equality, and have taken measures to diminish income inequality between men and women (Watson, 2000).

*Social-democratic-government hypothesis*: Cross-national gender differences in poverty can partly be explained by country level differences in government participation of social-democratic and communist parties.

As discussed in the previous paragraph, countries differ in the way they use their social security system to alleviate poverty. The amount of money transferred determines whether men and women who receive social security will remain poor, or will cross the poverty line. The higher the social security benefits, the more likely the latter will happen. Cross-national gender gaps in poverty may, therefore, be partly explained by the amount of financial support given to the poor (Peterson, 1989; Wright, 1995). This hypothesis overlaps with the social-democratic-government hypothesis. However, social security is also paid in countries without a social-democratic tradition. Besides, non-social-democratic governments may choose other policies to fight income inequality and poverty. We therefore explicitly test the following hypothesis:

*Social security hypothesis*: Cross-national gender differences in poverty can partly be explained by country level differences in social security benefits.

Finally, countries differ with respect to gender differences in all kinds of social domains. In some countries

inequality between men and women is generally less than in other countries. This may be the result of differential values with respect to equality, differential values with respect to the position of men and women, traditions of female employment, previous government policies, etc.; in sum, by the level of emancipation of a country. Most likely these country characteristics have reinforced each other. In the countries where emancipation of women is generally high, we also expect the poverty gap between men and women to be small.

*Emancipation hypothesis*: Cross-national gender differences in poverty can partly be explained by country level differences in women's emancipation.

# Data

The results in this article are based on the fourth wave of the Luxembourg Income Studies (LIS) (2004), an international database which consists of country specific comparable data. At the start of our study, in 2001, data on 22 countries were available. The total number of individuals in the dataset is 310,041. We selected all households in which the head of the household did not have a partner (n=108,651). Due to missing values on some variables all analyses are done on a dataset with 106,741 individuals. They are spread over the 22 countries as follows: Australia (n=2,924, 1994), Austria (n=8,482, 1995), Belgium (n=1,236, 1995), Canada (n=13,115, 1997), Czech Republic (n=4,995, 1992), Denmark (n=6,513, 1992), Finland (n=2,701, 1995), France (n=3,774, 1994), Germany (n=1,789, 1994), Great Britain (n=2,670, 1995), Hungary (n=705, 1994), Ireland (n=797, 1987), Israel (n=1,378, 1997), Italy (n=2,234, 1995), the Netherlands (n=1,587, 1994), Norway (n=3,192, 1995), Poland (n=9,002, 1995), Slovakia (n=4,911, 1992), Spain (n=4,553, 1990), Sweden (n=5,095, 1995), Switzerland (n=2,231, 1992), and the United States (n=21,622, 1997).

# Variables

One of the main difficulties in poverty research is the choice of the dependent variable. The definition of poverty has been studied so thoroughly that libraries can be filled with this subject's literature. In this study, we have chosen an objective, relative definition of poverty. We consider someone to be poor when his or her adjusted household income is below 50 per cent of the median income in this person's country. We use the procedure of the Organization for Economic Cooperation and Development (OECD) to adjust household income for the composition of the household:

$$W = H/(\text{head of household} \times 1 + \text{No. of adults} \times 0.7 + \text{No. of children} \times 0.5)^{0.5}$$

where W = adjusted household income, and H = total household income. Using this definition of poverty we find that 21.4 per cent of all single men are poor, against 31.8 per cent of all single women.

The most important individual level independent variable in this study on gender differences in poverty is gender. Women are coded 1, men 0. Obviously there are more women than men in the data. This is mainly due to an over-representation of women among older singles.

Education is used as an indicator of human capital. The measurement of education differs between the countries in the LIS. We synchronized the level of education by coding the variable into classes according to the number of years necessary to complete different levels of education: (0) 0 to 5 years of education, (1) 6 to 9 years, (2) 10 years, (3) 11 or 12 years, (4) 13 or 14 years, (5) 15 or 16 years, and (6) 17 or more years.

We distinguish three age groups: below 20 years of age, between 20 and 60 (this is the reference category), and over 60, to model the poverty risks of the younger and the older single population. Age is also to some extent an indicator of work experience, which is an important indicator of human capital. We recognize that age is not a perfect indicator of work experience. For men this is the case because some men attend school for a longer period than others, and in some countries men serve in the military for some years. For women the correlation between age and work experience is not perfect because they often interrupt their occupational career. However, since there is no information on the work history in the data, age is the best indicator we have.

Work is coded 1 for individuals with a paid job, and 0 for those without. In the dataset, 57.3 per cent of all single men have paid work, compared with only 39.0 per cent of the single women.

The variable children is coded 1 if someone takes care of children under 18, and coded 0 if not. Among single women, 24.8 per cent take care of children under 18, and among men, 8.7 per cent.

Economic growth is the first independent variable at the country level. It is composed from records of the World Development Report 1993 published by the Worldbank (1993). In this report the mean yearly economic growth (per cent) of several countries between

1980 and 1991 is published. We choose to use this period of time as the data on the dependent variable are measured after 1991. In this way we can study what effect economic growth has had on gender differences in poverty. Economic growth varies between 0.5 per cent (Czech Republic) and 3.3 per cent (Ireland).

The number of years that socio-democratic (or communist) parties participated in the government is the second country level variable. It is constructed with the help of the Political Data Handbook, written by Lane *et al.* (1997). In this book, the composition of government is specified for all OECD countries for the period 1945–1990. For each country in this study the number of years are counted that a party with a social-democratic or communist ideology participated in the government. Years in which the government consisted of a coalition in which one or more (but not all) parties had a social-democratic or communist ideology were counted as half years. Hungary, Israel, Poland, Slovakia and Czech Republic are not OECD countries, therefore Lane *et al.* (1997) do not give information on their governments. These countries were, accept for Israel, all communist in the period 1945–1990. Information on the Israeli government was on the Internet (Abbey *et al.*, 2003).

The LIS dataset contains detailed information on the social security arrangements of individuals in the different countries. This variable is constructed by defining for each country the ratio of the mean social security payment (of all individuals in the dataset receiving social security) and the 50 per cent median income (the poverty line) in this country. In this way countries can be compared with respect to the extent that social security prevents individuals from becoming poor. In Austria the amount of social security is relatively low compared to the poverty line (0.03). Of all the countries in our study, Poland shows the highest ratio (1.14).

To measure the level of emancipation in a country we combined seven indicators. These indicators are: the female tertiary students as a percentage of the male tertiary students in the period 1994–1997, the female economic activity rate as a percentage of the male rate in 1998, the percentage of female professional workers, the percentage of women in government at all levels in 1998, the number of seats held in parliament by women as a percentage of the total number of seats in 2000, and the inversed total fertility rate for the period 1995–2000. All these indicators are listed in the United Nations Development Report 2000 (UNDP, 2000). Further, we use women's average wages in manufacturing as a percentage of males in 1990 (United Nations, 1995: 128). Cronbach's Alpha of the emancipation scale is 0.74. There are some missing values in these data. We added up the standardized scores of the seven items and divided by the number of non-missing scores. Countries characterized by levels of high emancipation are the Scandinavian countries. Israel and Switzerland show relatively low levels of emancipation.

## Design

Our research question is a typical multilevel question: how can we explain differences in the size of an individual level effect (the effect of gender on poverty) between higher-level cases (countries)? However, LIS data can only be analyzed by remote execution of certain statistical packages. These allow the analysis of random intercepts, and the analysis of random slopes in small datasets, but not the analyses of random slopes in large datasets, as required to answer our question. We therefore had to use a different strategy and ended up with estimating six logistical regression models.

Models 1 and 2 are used to investigate whether there are indeed differences between the countries with respect to the effect of gender on the risk of poverty. Model 1 includes an overall effect of gender ($b_1$) and general country differences in the level of poverty (a set of $b_2$ parameters for the country dummies). The main effect $b_0$ is the log odds of poverty for the reference category: men living in the United States. In model 2 we include a set of interaction variables between country and gender ($b_3$). We will investigate whether the model with interaction effects fits the data better than the model without, and which countries are characterized by large gender differences.

$$\log\left(P_{poor} / 1 - P_{poor}\right) = b_0 + b_1 \times \text{woman} + b_2 \times \text{country} \quad (1)$$

$$\log\left(P_{poor} / 1 - P_{poor}\right) = b_0 + b_1 \times \text{woman} + b_2 \times \text{country} + b_3 \times \text{woman} \times \text{country} \quad (2)$$

In a next step we analyze whether the country differences with respect to the gender effect can be explained by differences between the countries in the composition of their populations. We estimate two more models. In model 3 the individual level variables from the hypotheses are added to model 1, in model 4 the same variables are added to model 2. Model 4 shows the 'net' differences between countries in the gender effect on poverty, taking composition effects into account. One way to evaluate the extent to which the country differences are explained by composition effects is by comparing the $b_3$

effects in model 4 and model 2. This results in 22 comparisons for the 22 countries in the study.

$$\log(P_{poor}/1-P_{poor}) = b_0 + b_1 \times \text{woman} + b_2 \times \text{country} + b_4 \times \text{education} + b_5 \times \text{young} + b_6 \times \text{old} + b_7 \times \text{work} + b_8 \times \text{children} \quad (3)$$

$$\log(P_{poor}/1-P_{poor}) = b_0 + b_1 \times \text{woman} + b_2 \times \text{country} + b_3 \times \text{woman} \times \text{country} + b_4 \times \text{education} + b_5 \times \text{young} + b_6 \times \text{old} + b_7 \times \text{work} + b_8 \times \text{children} \quad (4)$$

The explanatory power of the individual level variables, however, can also be summarized in one number by comparing the fit of models 1 to 4. If the country differences could be completely explained by composition effects, then model 4 should not fit the data better than model 3. If, on the contrary, the country differences in the gender effect are unrelated to the composition effects, the gain in fit between models 4 and 3 should be just as large as the gain in fit between models 2 and 1. The explanatory power of the composition effects can therefore be calculated as the gain in fit between models 3 and 4 ($Chi^2(4) - Chi^2(3)$) subtracted from the gain in fit between models 1 and 2 ($Chi^2(2) - Chi^2(1)$). We express this as a percentage of the maximum gain of fit (i.e. $Chi^2(2) - Chi^2(1)$). Thus, the explanatory power of the composition effects is:

$$[(Chi^2(2) - Chi^2(1)) - (Chi^2(4) - Chi^2(3))] / (Chi^2(2) - Chi^2(1))$$

In order to investigate which of the composition effects is most important, we estimate a series of models 3 and 4, each including only one of the individual level effects. The explanatory power of each of the composition effects is calculated in the same way as the explanatory power of all the composition effects together.

Models 5 and 6 will be used to test the country level hypotheses. We look at country level effects without taking composition effects into account (model 5) and with taking composition effects into account (model 6). The country level effects are modeled as interactions of the country characteristics and being a woman. These interactions express that women profit more (or less) from these country characteristics than men. The main effects of the country variables are not included in the models because they are fully covered by the country dummies.

$$\log(P_{poor}/1-P_{poor}) = b_0 + b_1 \times \text{woman} + b_2 \times \text{country} + b_9 \times \text{growth} \times \text{woman} + b_{10} \times \text{socio-democratic} \times \text{woman} + b_{11} \times \text{social security} \times \text{woman} + b_{12} \times \text{emancipation} \times \text{woman} \quad (5)$$

$$\log(P_{poor}/1-P_{poor}) = b_0 + b_1 \times \text{woman} + b_2 \times \text{country} + b_4 \times \text{education} + b_5 \times \text{young} + b_6 \times \text{old} + b_7 \times \text{work} + b_8 \times \text{children} + b_9 \times \text{growth} \times \text{woman} + b_{10} \times \text{socio-democratic} \times \text{woman} + b_{11} \times \text{social security} \times \text{woman} + b_{12} \times \text{emancipation} \times \text{woman} \quad (6)$$

Evaluating the explanatory power of the country level variables is less complicated than evaluating that of the composition effects. We simply look at to what extent the country differences in the effect of gender on poverty are covered by linear effects of the country characteristics. The following two formulae are used before and after taking composition effects into account, respectively:

$$(Chi^2(5)—Chi^2(1)) / (Chi^2(2)—Chi^2(1))$$

$$(Chi^2(6)—Chi^2(3)) / (Chi^2(4)—Chi^2(3))$$

# Results

## Descriptive

Figure 2 shows the percentages of poor single men and women in the 22 countries. Obviously, countries differ with respect to the absolute level of poverty. The poverty rate is high in Australia, the United States, Israel, Russia, and Ireland. It is small in most former communist countries. The gender differences in poverty also differ markedly between countries. In the figure, countries are ranked by the gender difference in poverty. The difference is largest in the United States. In this country 36.4 per cent of all single women are poor against 22.5 per cent of single men. Thus, in the United States the risk for single women of being poor is almost 14 per cent higher than for men. Other countries with large gender differences in poverty (above 10 per cent) are Australia, Spain, and Italy. In some countries there are almost no differences (Poland, Belgium, the Netherlands, and Denmark). Interestingly enough, there are countries in which single men are somewhat more likely to be poor

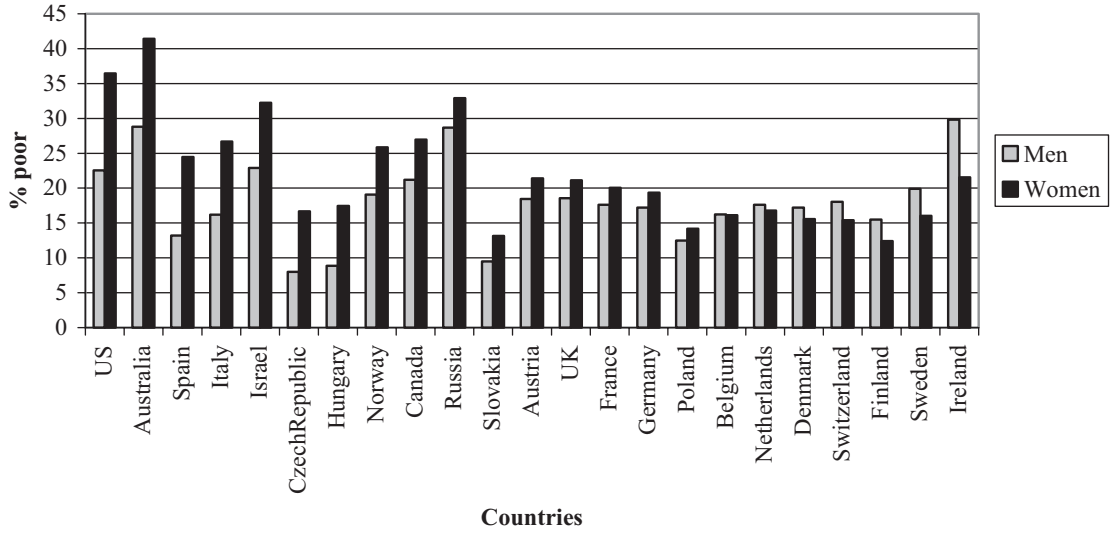


**Figure 2** Percentage of poor men and women by country

than single women. In Ireland the difference is substantial in the disadvantage of men (8.3 per cent).

Former research on cross-national gender differences in poverty does not always show the same results. In Table 1, the results of four other studies are compared to our results. Of course, these studies used different operationalizations. Smeeding *et al.* (1990) do not present a gender difference in poverty. Therefore we calculated the ratio between the percentage of poor single-parent households and the overall percentage of poor households. Casper *et al.* (1994) and Wright (1995) define the gender difference in poverty as the ratio between the percentage of poor women and the percentage of poor men in all households. Pressman (1998) calculates the difference between the percentage of poor women in female headed households and of poor men in other households. In our study we selected only singles.

In order to reach a general conclusion using information on all four studies, we calculated proportional rank scores (PRS) for all the countries in each study. The country with the largest gender difference in poverty in a study receives a score of 100, the country with the smallest

**Table 1** Proportional rank scores for countries in research on the gender-poverty-gap

| | Smeeding *et al.* (1990) | Casper *et al.* (1994) | Wright (1995) | Pressman (1998) | Wiepking and Maas (2004) | Average proportional rank score (PRS) |
|---|---|---|---|---|---|---|
| United States | 67 | 100 | 100 | 100 | 100 | 93 |
| Australia | - | 86 | 89 | 85 | 95 | 89 |
| Canada | 83 | 57 | 67 | 92 | 64 | 73 |
| Germany | 50 | 71 | 78 | 69 | 36 | 61 |
| Norway | 0 | - | - | 77 | 68 | 48 |
| Great Britain | 100 | 43 | 44 | 8 | 45 | 48 |
| Israel | 33 | - | - | 23 | 82 | 46 |
| Poland | - | - | 56 | 38 | 32 | 42 |
| Belgium | - | - | - | 54 | 27 | 41 |
| Italy | - | 29 | 11 | 31 | 86 | 39 |
| Netherlands | - | 29 | 33 | 46 | 23 | 33 |
| France | - | - | 22 | 15 | 41 | 26 |
| Sweden | 17 | 0 | 0 | 62 | 5 | 17 |
| Ireland | - | - | - | 0 | 0 | 0 |

gender difference receives a score of 0. The countries in between received proportional rank scores according to the formula: PRS = (100/(No. of countries in study − 1)) × rank score country within study). In four out of five studies, the United States is the country with the largest gender difference in poverty. Other countries that have high average proportional rank scores are Australia, Canada and Germany. Ireland and Sweden are generally characterized by gender differences in favor of women.

## Models

The six models estimated to test the composition and country level hypotheses are presented in Table 2. In order to test whether countries differ with respect to the gender-poverty-gap – as we found in our descriptive results – we compare the fit of model 2 and model 1. Compared to model 1, model 2 shows a rise in chi-square of (4039 − 3676) = 363, with 21 degrees of freedom. This confirms that there are large country specific gender differences with respect to poverty. The odds ratios show that women have a larger chance of being poor in the United States (1.90), Canada (1.50, i.e. 1.90 × 0.79), Austria (1.41), Poland (1.20), France (1.17), Israel (1.17), United Kingdom (1.15), and the Netherlands (1.04). Men have larger poverty chances in Ireland (0.73), Sweden (0.74), Finland (0.83), Switzerland (0.86), Denmark (0.89), and Belgium (0.98). These results are not completely comparable with the percentages in Figure 2 for three reasons. First, the odds ratios take into account the level of poverty in a country. This means that a difference of 10 per cent counts more if poverty is relatively rare (e.g. Spain) than if poverty is common (e.g. United States). Second, odds ratios are more likely to be significant in large samples (e.g. Austria) than in smaller samples (e.g. Australia). Third, the percentages are calculated on a weighted dataset that is somewhat larger than the dataset used to estimate the models (because of missing values on the independent variables). As a result small gender-poverty-gaps may even appear to be in the opposite direction (e.g. the Netherlands). If we refrain from interpreting the significance, however, the results of the two types of analyses are quite comparable.

In order to investigate whether the gender differences in poverty can be explained by the composition of the populations of the included countries with respect to education, age, having a paid job, and having children, the fit of model 4 – with both the individual level variables and the interaction effects between country and gender – is compared to the fit of model 3, with only individual level variables. The likelihood ratio chi-square of model 4 is significantly larger than the chi-square found for model 3. From this we may conclude that composition effects do not completely explain the country differences in the gender-poverty-gap. In fact, the composition effects explain only 18 per cent of the country differences: [(4039–3676 = 363) − (16911–16614 = 297)] / (4039–3676 = 363) = 0.18.

Figure 3 shows the country differences in the relative poverty chances of men and women before and after taking the differential composition of the populations into account. In almost all the countries in this study, the relative chances of poverty for men and women are more in favor of women if we take composition effects into account (i.e. the odds ratios approach 0). There are three exceptions. In Switzerland and Denmark the relative poverty chances of men and women do not seem to be the result of composition effects. In the United Kingdom the disadvantage of women becomes larger after taking into account the composition of the population with respect to education, age, having a paid job, and having children. In the Netherlands the gross gender difference in the chance of poverty is to the benefit of women, but after taking composition effects into account the chances of poverty are larger for men.

All but one of the individual level variables in model 4 significantly affects the poverty risk. Men and women with a better education are less likely to be poor. Whereas we expected the poverty risk to be especially high in old age, the opposite is true. Younger singles are three times as likely to be poor than middle aged singles. The latter group is twice as likely to be poor than older singles. Having a paid job strongly decreases the poverty risk. After taking labor market status into account, it does not matter whether singles take care of children or not. From model 4 it is not clear which composition variable is most important in explaining the country differences in gender specific poverty risks. To investigate this issue, we added the individual level variables one by one to model 4 and model 3, and calculated what percentage of the gain in fit between model 1 and model 2 is explained by each variable (models not shown in the table). These figures are 13 per cent for education, 2 per cent for being young, 1 per cent for being old, 3 per cent for having a paid job, and 0 per cent for having a child. This clearly shows that the educational composition of the population of single men and women is by far the most important population characteristic explaining country specific gender-poverty-gaps.

**Table 2** Logistic regression models of poverty (odds ratios)

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 1.25 | *** | 1.36 | *** | 0.61 | *** | 0.80 | ** | 1.35 | *** | 0.69 | *** |
| Austria | 0.53 | *** | 0.64 | *** | 0.29 | *** | 0.43 | *** | 0.60 | *** | 0.37 | *** |
| Belgium | 0.39 | *** | 0.61 | *** | 0.20 | *** | 0.35 | *** | 0.43 | *** | 0.23 | *** |
| Canada | 0.78 | *** | 0.92 | | 0.60 | *** | 0.72 | *** | 0.83 | *** | 0.64 | *** |
| Czech Republic | 0.34 | *** | 0.29 | *** | 0.23 | *** | 0.22 | *** | 0.38 | *** | 0.27 | *** |
| Denmark | 0.42 | *** | 0.67 | *** | 0.26 | *** | 0.40 | *** | 0.57 | *** | 0.36 | *** |
| Finland | 0.29 | *** | 0.48 | *** | 0.15 | *** | 0.25 | *** | 0.38 | *** | 0.19 | *** |
| France | 0.49 | *** | 0.69 | *** | 0.26 | *** | 0.39 | *** | 0.50 | *** | 0.27 | *** |
| Germany | 0.45 | *** | 0.53 | *** | 0.29 | *** | 0.36 | *** | 0.03 | *** | 0.34 | *** |
| United Kingdom | 0.53 | *** | 0.75 | *** | 0.73 | *** | 0.86 | | 0.64 | *** | 0.94 | |
| Hungary | 0.31 | *** | 0.29 | *** | 0.16 | *** | 0.17 | *** | 0.36 | *** | 0.20 | *** |
| Ireland | 0.56 | *** | 1.01 | | 0.26 | *** | 0.61 | *** | 0.64 | *** | 0.33 | *** |
| Israel | 0.82 | *** | 1.14 | | 0.63 | *** | 0.91 | | 0.88 | | 0.76 | *** |
| Italy | 0.58 | *** | 0.59 | *** | 0.29 | *** | 0.35 | *** | 0.62 | *** | 0.33 | *** |
| Netherlands | 0.46 | *** | 0.69 | ** | 0.24 | *** | 0.41 | *** | 0.47 | *** | 0.26 | *** |
| Norway | 0.65 | *** | 0.71 | *** | 0.38 | *** | 0.50 | *** | 0.91 | | 0.55 | *** |
| Poland | 0.32 | *** | 0.44 | *** | 0.19 | *** | 0.29 | *** | 0.38 | *** | 0.24 | *** |
| Slovakia | 0.28 | *** | 0.33 | *** | 0.15 | *** | 0.18 | *** | 0.32 | *** | 0.18 | *** |
| Spain | 0.57 | *** | 0.47 | *** | 0.25 | *** | 0.24 | *** | 0.69 | *** | 0.31 | *** |
| Sweden | 0.51 | *** | 0.85 | ** | 0.27 | *** | 0.45 | *** | 0.66 | *** | 0.34 | *** |
| Switzerland | 0.47 | *** | 0.78 | ** | 0.01 | *** | 0.37 | *** | 0.42 | *** | 0.22 | *** |
| Australia × woman | | | 0.90 | | | | 0.68 | *** | | | | |
| Austria × woman | | | 0.74 | *** | | | 0.59 | *** | | | | |
| Belgium × woman | | | 0.52 | *** | | | 0.45 | *** | | | | |
| Canada × woman | | | 0.79 | *** | | | 0.76 | *** | | | | |
| Czech Republic × woman | | | 1.21 | | | | 1.02 | | | | | |
| Denmark × woman | | | 0.47 | *** | | | 0.51 | *** | | | | |
| Finland × woman | | | 0.44 | *** | | | 0.42 | *** | | | | |
| France × woman | | | 0.61 | *** | | | 0.58 | *** | | | | |
| Germany × woman | | | 0.79 | | | | 0.73 | | | | | |
| United Kingdom × woman | | | 0.61 | *** | | | 0.79 | | | | | |
| Hungary × woman | | | 1.05 | | | | 0.92 | | | | | |
| Ireland × woman | | | 0.38 | *** | | | 0.27 | *** | | | | |
| Israel × woman | | | 0.62 | *** | | | 0.59 | *** | | | | |
| Italy × woman | | | 0.96 | | | | 0.74 | | | | | |
| Netherlands × woman | | | 0.54 | *** | | | 0.47 | *** | | | | |
| Norway × woman | | | 0.88 | | | | 0.68 | *** | | | | |
| Poland × woman | | | 0.63 | *** | | | 0.58 | *** | | | | |
| Slovakia × woman | | | 0.76 | | | | 0.73 | ** | | | | |
| Spain × woman | | | 1.23 | | | | 1.02 | | | | | |
| Sweden × woman | | | 0.39 | *** | | | 0.39 | *** | | | | |
| Switzerland × woman | | | 0.45 | *** | | | 0.48 | *** | | | | |
| Woman (United States) | 1.45 | *** | 1.90 | *** | 1.27 | *** | 1.78 | *** | 2.58 | *** | 2.30 | *** |
| Education | | | | | 0.78 | *** | 0.77 | *** | | | 0.77 | *** |
| Young | | | | | 3.19 | *** | 3.17 | *** | | | 3.19 | *** |
| Old | | | | | 0.45 | *** | 0.45 | *** | | | 0.45 | *** |
| Work | | | | | 0.17 | *** | 0.17 | *** | | | 0.17 | *** |
| Children | | | | | 1.04 | | 1.04 | | | | 1.03 | |

*continued*

**Table 2** (*continued*)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Growth × woman | | | | | 0.81 | *** | 0.79 | *** |
| Socio-democratic × woman | | | | | 0.99 | *** | 0.99 | *** |
| Social security × woman | | | | | 0.91 | | 0.93 | |
| Emancipation × woman | | | | | 0.84 | *** | 0.92 | |
| LR CHI2 | 3676 | 4039 | 16614 | 16911 | 3781 | | 16720 | |
| Degrees of freedom | (22) | (43) | (27) | (48) | (26) | | (31) | |

****P < 0.01, **P < 0.05, *P < 0.10*

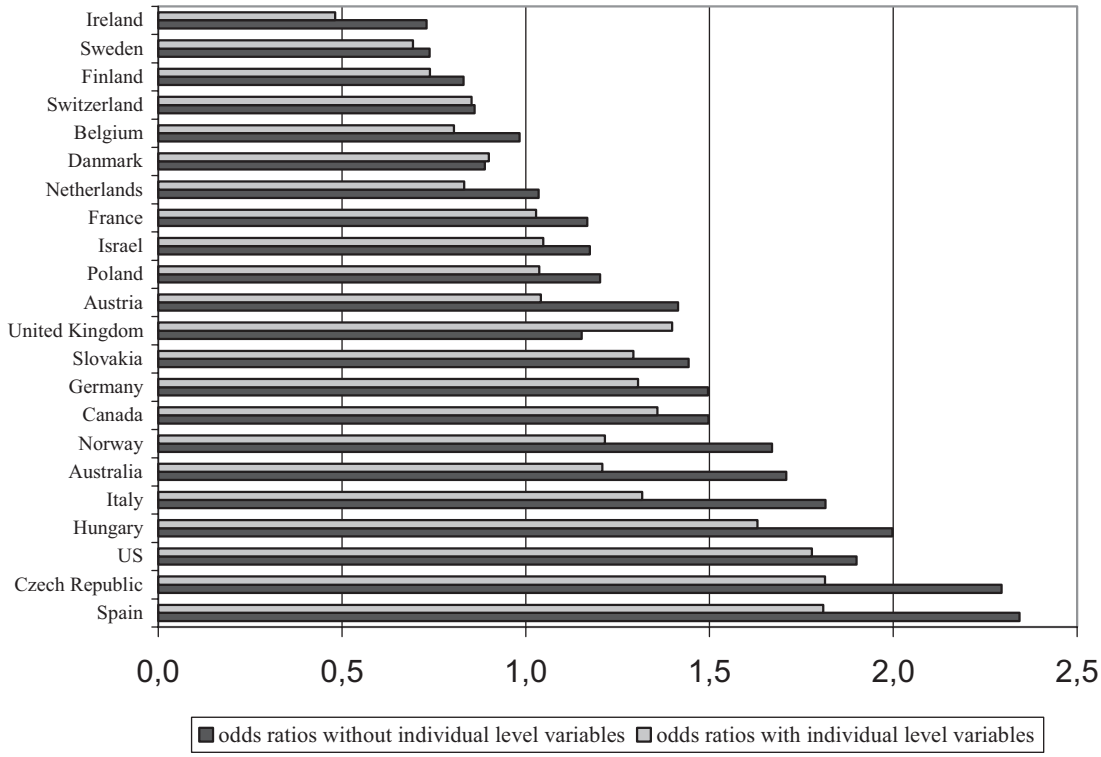


**Figure 3** Country differences in relative poverty chances for men and woman before and after taking the differential composition of the populations into account

About 82 per cent of the country differences in the gender specific poverty rate cannot be explained by the differential composition of the populations of these countries. In our next analyses we investigate whether these differences can be explained by characteristics of the countries, such as economic growth, socio-democratic history, social security, and emancipation. Country characteristics can be correlated to the composition of the population; we therefore investigate their effects both before and after taking the individual characteristics into account. Before taking individual characteristics into account, the country characteristics explain $(3781-3676)/(4039-3676)=29$ per cent of the country differences in gender specific poverty rates. After taking individual characteristics into account, this amounts to $(16720-16614)/(16911-16614)=36$ per cent of the remaining country differences.

Women are less disadvantaged in countries with strong economic growth, and countries with a history of socio-democratic governments. This is also the case for countries with an emancipated population. However, the emancipation effect 'works' via the composition of

the population. In these countries the population is better educated, and more single women have a paid job. It is surprising to see that the level of social security does not influence the gender specific poverty rates and as a consequence does not explain any country differences in gender specific poverty rates. Thus socio-democratic governments work against the disadvantage of women, but not via the social security system.

## Conclusion

In this paper we described and attempted to explain cross-national gender differences in poverty for singles in 22 industrialized countries. We started by showing that, theoretically, the cross-national gender-poverty-gap can be explained by both compositional and context effects. First, countries may differ in the composition of their population with respect to individual characteristics that increase the likelihood for men and women to become poor. And secondly, the macro-level context may directly influence the poverty risks of men and women in different ways. We used the fourth wave of the Luxembourg Income Studies in order to test our hypotheses.

We can conclude that both composition and country effects explain a substantial part of the country differences in the gender-poverty-gap. From our analyses, country effects seem somewhat more important than composition effects. We formulated four hypotheses on country effects. According to the economic growth hypothesis, cross-national gender differences in poverty can be partly explained by country level differences in economic growth. This hypothesis is supported. A more specific result is that women's poverty risks are smaller in countries in which the economy grows faster. We also find support for the social-democratic-government hypothesis. The duration of social-democratic and communist parties' participation in the government explains part of the country differences. Women especially profit from such a government composition. The social security hypothesis is not supported. Higher social security benefits may prevent poverty in general, but neither men nor women especially benefit. Finally, the level of emancipation explains part of the country differences in the gender-poverty-gap as predicted by the emancipation hypothesis. It is probably not correct to use the word 'explain' in this case. The effect of the level of emancipation in a country should probably be interpreted in the sense that if women perform well in several domains of life, they are also less likely to become poor.

Of the four composition effects that we predicted, education clearly matters most. If we take the level of education of single men and women into account, we explain 13 per cent of the country differences in the gender-poverty-gap. As expected, a good education protects against poverty. The paid work hypothesis performs second best. The composition of the population with respect to labor market status explains three per cent of the country differences. The age composition and whether singles take care of a child hardly matter. The latter finding is especially surprising. We expected that singles who have the sole responsibility of raising children would not only be less likely to be on the labor market (covered in the models by labor market status) but also more likely to work in jobs that produce less financial security. And since they have to share their income with more people, singles taking care of children need a higher income to remain above the poverty level than singles without children. Perhaps this finding results from a misspecification of the models (and insufficient theory). It may well be the case that men who take care of children especially invest in financial security, outsourcing the daily care of their children, whereas women try to combine daily care for their children with a part-time job. Alternatively, it may be the case that poor singles refrain from having (more) children. The cross-sectional nature of the data, however, does not allow us to further investigate this matter.

Both the country level variables and the composition effects mainly explain the disadvantages of women. However, there is a substantial number of countries in which single men are more likely to be poor than single women. The hypotheses we used in this article fail to explain this. In fact, the disadvantages of men tend to become larger after we take the composition and country effects into account. At this point we can only speculate about the causes of men's disadvantages. One cause may be differential selection into the groups of male and female singles. It may be the case that women who remain single are more often economically successful, and men who remain single more often belong to the economically less successful group. Although we control for this to some extent by taking education and labor market participation into account, differences in income may remain. Similarly it may be that poor young women stay longer in the parental home whereas poor young men start a one-person household. It is unclear, however, why this would be especially the case in some countries and not in others. Finally, it may be that through the payment of alimentation, divorced women tend to escape poverty. The advantage of such an explanation is

that it can also explain country differences in the gender-poverty-gap by the country specific ways in which the payment of alimentation is regulated.

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